SANTA CRUZ BIOTECHNOLOGY, INC.

mt-TyrRS (C-24): sc-130587

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The fidelity of protein synthesis requires efficient discrimination of amino acid substrates by aminoacyl-tRNA synthetases. Aminoacyl-tRNA synthetases function to catalyze the aminoacylation of tRNAs by their corresponding amino acids, thus linking amino acids with tRNA-contained nucleotide triplets. Mt-TyrRS (Tyrosyl-tRNA synthetase, mitochondrial), also known as Tyrosine-tRNA ligase and Tyrosal-tRNA synthetase 2, is a 477 amino acid protein that belongs to the class-I aminoacyl-tRNA synthetase family. Containing a 16-amino acid mitchondrial targeting signal, mt-TyrRS is localized to the mitochondrial matrix where it exists as a homodimer and functions primarily to catalyze the attachment of tyrosine to tRNA(Tyr) in a two-step reaction. First, tyrosine is activated by ATP to form Tyr-AMP, then it is transferred to the acceptor end of tRNA(Tyr).

REFERENCES

1. Bedouelle, H., et al. 1993. Discrimination between transfer-RNAs by tyrosyl-tRNA synthetase. Biochimie 75: 1099-1108.
2. Bonnefond, L., et al. 2005. Toward the full set of human mitochondrial aminoacyl-tRNA synthetases: characterization of AspRS and TyrRS. Biochemistry 44: 4805-4816.
3. Bonnefond, L., et al. 2005. Evolution of the tRNA(Tyr)/TyrRS aminoacylation systems. Biochimie 87: 873-883.
4. Bonnefond, L., et al. 2005. Human mitochondrial TyrRS disobeys the tyrosine identity rules. RNA 11: 558-562.
5. Bonnefond, L., et al. 2007. Crystal structure of human mitochondrial tyrosyl-tRNA synthetase reveals common and idiosyncratic features. Structure 15: 1505-1516.
6. Dormeyer, W., et al. 2008. Plasma membrane proteomics of human embryonic stem cells and human embryonal carcinoma cells. J. Proteome Res. 7: 2936-2951.
7. Paukstelis, P.J., et al. 2008. Structure of a tyrosyl-tRNA synthetase splicing factor bound to a group I intron RNA. Nature 451: 94-97.
8. Online Mendelian Inheritance in Man, OMIM™. 2009. Johns Hopkins University, Baltimore, MD. MIM Number: 610957. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: YARS2 (human) mapping to 12p11.21.

SOURCE

mt-TyrRS (C-24) is a purified rabbit polyclonal antibody raised against a peptide mapping near the C-terminus of mt-TyrRS of human origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

mt-TyrRS (C-24) is recommended for detection of mt-TyrRS of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for mt-TyrRS siRNA (h): sc-95920, mt-TyrRS shRNA Plasmid (h): sc-95920-SH and mt-TyrRS shRNA (h) Lentiviral Particles: sc-95920-V.

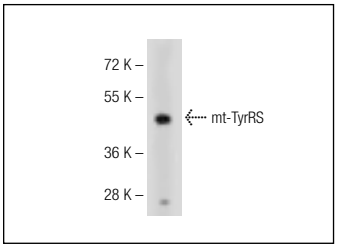
Molecular Weight of mt-TyrRS: 53 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200 or Human recombinant TyrRS fusion protein.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048.

DATA



mt-TyrRS (C-24): sc-130587. Western blot analysis of mt-TyrRS expression in CEM whole cell lysate.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.